

Bradley S. Van Gosen
U.S. GEOLOGICAL SURVEY
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SERVICE FOR THE U.S. GEOLOGICAL SURVEY (USGS)

1985 to 1988—Permanent, full-time Physical Science Technician
1988 to present—Permanent, full-time Research Geologist

Lead author or coauthor of 137 publications (as of early 2020)

EDUCATION

Univ. of Colorado at Boulder	Geology	B.A., 1982
Colorado School of Mines	Geology	M.S., 1994

PRINCIPAL RECENT RESEARCH ASSIGNMENTS

Earth Materials and Human Health

This project coordinated with numerous medical and health experts and regulatory agencies to understand the links between fibrous minerals and respiratory diseases. The project developed and applied a variety of earth science methods, such as geologic, mineralogical, and geochemical studies designed to address the many unresolved issues associated with mineral fibers.

My research has identified and explained the diverse asbestos-forming geologic environments while documenting their distribution. This information has been communicated in numerous digital datasets, papers, and talks in ways that facilitate its use by public health studies and risk mitigation. As a result, I became a national and international go-to expert on the geology of asbestos, often sought out for advice, speaking engagements, and committee participation.

Selected related publications:

Van Gosen, B.S., 2019, Reported historic asbestos mines, historic asbestos prospects, and other natural occurrences of asbestos in the conterminous United States: U.S. Geological Survey data release, <https://doi.org/10.5066/P92IB844>

Van Gosen, B.S., and others, 2013, Geologic occurrences of erionite in the United States—An emerging national public health concern for respiratory disease: *Environmental Geochemistry and Health*, v. 35, no. 4, p. 419–430.

Van Gosen, B.S., 2007, The geology of asbestos in the United States and its practical applications: *Environmental & Engineering Geoscience*, v. 13, no. 1, p. 55–68.

Van Gosen, B.S., and others, 2004, Using the geologic setting of talc deposits as an indicator of amphibole asbestos content: *Environmental Geology*, v. 45, no. 7, p. 920–939.

Earth Mapping Resources Initiative (Earth MRI)

A broad range of existing and emerging technologies are generating unprecedented demand for mineral commodities. The US is highly dependent on imports for many of these “critical minerals”.

For selected critical mineral commodities, the project investigates:

1. the current state of knowledge of the commodity’s geology;
2. known resources, both domestic and globally;
3. geoenvironmental issues related to their production and use; and
4. the geologic possibilities for finding additional deposits, both in the US and globally.

My contributions have focused mainly on understanding the geology and distribution of deposits of rare earth elements as well as titanium, as exemplified by these recent publications:

Van Gosen, B.S., and others, 2019, Rare earth element mineral deposits in the United States: U.S. Geological Survey Circular 1454, 16 p., <https://doi.org/10.3133/cir1454>

Van Gosen, B.S., and Ellefsen, K.J., 2018, Titanium mineral resources in heavy-mineral sands in the Atlantic coastal plain of the southeastern United States: U.S. Geological Survey Scientific Investigations Report 2018–5045, 32 p., <https://doi.org/10.3133/sir20185045>

Van Gosen, B.S., and others, 2017, Rare-earth elements, chap. O of Schulz, K.J., DeYoung, J.H., Jr., Seal, R.R., II, and Bradley, D.C., eds., Critical mineral resources of the United States—Economic and environmental geology and prospects for future supply: U.S. Geological Survey Professional Paper 1802, p. O1– O31. <https://doi.org/10.3133/pp1802>

Studies of Nuclear Fuel Resources (Uranium and Thorium Deposits)

These studies focus on the geology and resource endowment of uranium and thorium deposits, as well as geo-environmental aspects of the extraction of uranium and thorium.

I contribute expertise on the geology and assessment of uranium and thorium resources, serving as the USGS’ thorium geologist and resource specialist. I am the USGS expert on the geology and mineral resources of uranium deposits of the Grand Canyon region, an area of high visibility due to ongoing uranium mining adjacent to protected federal lands. I also work closely with the International Atomic Energy Agency (IAEA), serving as the expert regarding US thorium deposits and resources.

Van Gosen, B.S., 2018, Collapse breccia pipe deposits, *in* Geological classification of uranium deposits and description of selected examples: Vienna, Austria, International Atomic Energy Agency (IAEA) Technical Document IAEA-TECDOC-1842, p. 237–244.

Van Gosen, B.S., and Hall, S.M., 2017, The discovery and character of Pleistocene calcrete uranium deposits in the Southern High Plains of west Texas, United States: U.S. Geological Survey Scientific Investigations Report 2017–5134, 27 p. <https://doi.org/10.3133/sir20175134>

Van Gosen, B.S., and Tulsidas, Harikrishnan, 2016, Thorium as a nuclear fuel (Chapter 10), *in* Hore-Lacy, Ian, ed., Uranium for nuclear power—Resources, mining and transformation to fuel: Amsterdam, Elsevier Ltd., Woodhead Publishing Series in Energy, Number 93, p. 253–296.